AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) A system for establishing an end-to-end data path connection to transfer data between an origination site and a destination site, said system comprising:

an interface circuit for receiving physical data signals and data touting configuration information through a transmission channel coupled to said origination site;

a data routing control circuit, for setting up a data route between said origination site and said destination site based on the data routing configuration information; and

an access router for routing said data through the data route;

a dialing logic circuit for performing call setup and tear down operations based on said data routing configuration information;

a public switched telephone network (PSTN) interface for transmitting pulse code modulated voice data received from said origination site directly to a PSTN switch;

wherein said data path connection is formed by the data route, and can include any one or mote of the following data paths: (i) a switched circuit network, including one or more PSTN circuits; and/or (ii) a wide area network (WAN); and/or (iii) one or more digital cross-connects.

2. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to whether a time sensitive data path connection is required.

3. (Original) The system of claim 2, wherein the data' routing control circuit routes time sensitive data through the switched network, the digital cross-connect, or some other available data path other than the wide area network.

4. (Original) The system of claim 2, wherein the data routing control circuit routes non-time sensitive data through the wide area network or some other available data paths other than the switched network and digital cross-connects.

5. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to a desired target data rate.

6. (Original) The system of claim 5, wherein the data routing control circuit dynamically determines a maximum target data rate of available data paths and sets up said data path connection based on this determination.

7. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to costs associated with setting up the data path connection.

8. (Original) The system of claim 7 wherein the data routing control circuit dynamically determines a cost associated with available data paths, and sets up said data path connection based on this determination.

9. (Original) The system of claim 1, wherein the data routing configuration information can include information pertaining to the connection model used at the origination site, including whether such site utilizes a dial-up or always-on connection.

10. (Previously Presented) The system of claim 1, wherein the data routing control circuit dynamically determines which available data paths are best suited for the connection model used at the origination site, including whether the origination site is using a dial-up modem and/or a network connection.

11. (Original) The system of claim 1, wherein the transmission channel is a digital subscriber loop (DSL).

12. (Original) The system of claim 11, wherein the interface circuit also separates the data into voice signals and DSL signals.

13. (Previously Presented) The system of claim 12, further including a pulse code modulation circuit for converting voice signals into said PCM voice data for routing through the PSTN switch.

14. (Previously Presented) The system of claim 1, further including: (i) a wide area network interface circuit; and (ii) a digital cross-connect interface circuit.

15. (Original) The system of claim 1, wherein the WAN can be selected for setting up a high speed data link in excess of 128Kb/s.

16. (Original) The system of claim 1, wherein the WAN optionally transfers data using any or all of the following: packet switching, frame relay, and asynchronous transfer mode (ATM).

17. (Previously Presented) The system of claim 1, wherein said PSTN switch can be selected to transfer time sensitive data by setting up one or more dedicated 64Kb/s links.

18. (Previously Presented) A system for establishing a data path connection between an originating site arid a destination site, the system comprising:

an access select circuit for setting up a first path and/or a second path as the data path connection based on connection configuration information received from the originating site; and

wherein said first path includes a public switched telephone network (PSTN) and/or digital cross-connects (DCS) and said second path includes a wide area network (WAN);

a pulse code modulation circuit for converting voice signals from the origination site into pulse code modulated voice data suitable for transmission over a PSTN switch; and

a data access router coupled to and controlled by said access select circuit for routing communications between the originating site and the destination site over said first path and/or said second path; and

said data access router being further coupled to a PSTN interface, a DCS interface and a WAN interface for transmitting said communications over said first and/or second paths.

19. (Original) The system of claim 18, wherein said connection configuration information can set up said first path as said data path connection for time sensitive data signals, and can further set up said second path as said data path connection for any other data signals.

20. (Cancelled)

21. (Original) The system of claim 18, wherein the data routing configuration information can include information selecting one or more of the data routes, as well as a target data rate.

22. (Previously Presented) The system of claim 18, wherein both the originating and destination sites ate coupled by digital subscriber loops to said first arid second data paths.

23. (Previously Presented) The system of claim 18, wherein a data rate for the data patch connection is based on data processing capabilities of said originating arid destination sites.

24. - 36. Cancelled

37. (Previously Presented) A system for routing digital subscriber loop (DSL) data from an originating site to a destination site through a configurable data route, said system comprising:

[a] an interface circuit for receiving the DSL data through a transmission channel coupled to said originating site; and

[b] a conversion circuit for converting the DSL data into routable data signals; and

[c] an access circuit for setting up the configurable data route to said destination site;

wherein the data route can be configured to include either or both of a first data path and second data path; and

further wherein the first and second data paths have associated first and second data transmission delay characteristics and first and second data transfer rate characteristics;

[d] a router circuit for transmitting said routable data signals over the first data path and/or said second data path, including a public switched telephone network switch.

38. (Original) The system of claim 37, wherein said first data path includes a switched network and/or a digital cross-connect, and said second data path includes a wide area network.

39. (Previously Presented) The system of claim 38 wherein the router routes time sensitive routable data signals through the switched network or the digital cross-connect.

40. (Previously Presented) The system of claim 39 wherein the access circuit transfers DSL data over the PSTN by setting up one or more dedicated high speed circuit switched connections.

41. (Previously Presented) The system of claim 40, wherein the router routes the routable data signals that are not tune sensitive through the wide area network.

42. (Previously Presented) The system of claim 38, wherein the access circuit sets up the second path for data transfers requiring a transfer rate in excess of the first data transfer rate.

43. (Original) The system of claim 38, wherein the WAN transfers data using frame relay and/or asynchronous transfer mode data packet switching.

44. Cancelled

45. (Previously Presented) The system of claim 37, wherein said interface circuit also separates voice band signals and DSL signals from the originating site.

46. Cancelled

47. (Original) The system of claim 37, further including. (i) a switched network interface circuit (ii) a wide area network interface circuit; and (iii) a digital cross-connect interface circuit.

48. (Previously Presented) A method for accessing a communications system from an originating site, said system having access to a first data path having first data transmission characteristics and a second data path having second data transmission characteristics for transferring data, said method including the steps of:

initiating an access request to said communications system, the access request including information concerning requested data transmission characteristics for a desired data transfer, and

determining whether the access request is related to a request for voice signal transmission or a data signal transmission; and

selecting and configuring a data route for data transfer to a destination site using first and/or second data paths by determining which of first and second data transmission characteristics best matches the requested data transmission characteristics; and

transferring data between the originating site and said destination site by using a virtual packet switched circuit connection and/or a virtual permanent circuit connection for the first and/or second data paths respectively.

49. (Original) The method of claim 48, wherein said first data path is selected and configured when the access request is related to a voice signal, and either or both of said first and second data paths are selected and configured when the access request is related to a data signal.

50. (Original) The method of claim 48, wherein the first and second data transmission characteristics can include any one or more of the following:

(a) availability of such data path; and/or

(b) cost per unit of transmission bandwidth of such data path; and/or

(c) data transfer rates achievable using such data path; and/or

(d) data transfer delays of such data path.

51. (Original) The method of claim 48, wherein the data route can be configured during step [c] based on data transfer rate capabilities of the destination site, said originating site, and the first and second data paths.

52. (Original) The method of claim 48, wherein during step [c] the data route can be selected such that time sensitive data signals are routed through said first path, and non time sensitive signals are routed through said second path.

53. (Original) The method of claim 48, wherein during step [c] the data path having the least cost per unit of transmission bandwidth can be selected for the data route.

54. (Original) The method of claim 48, wherein said first data path is a circuit switched network and/or a digital cross-connect, and said second data path is a wide area network.

55. (Original) The method of claim 48, wherein the access request includes a distinct signaling message for indicating a request for data signal transmission.

56. – 63. Cancelled

64. (Previously Presented) A data access system for routing data communications received from a plurality of digital subscriber loops comprising:

a concentrator circuit for interfacing to the plurality of digital subscriber loops; and

a pulse code modulation circuit coupled to the concentrator circuit for converting voice data received in the data communications from the plurality of digital subscriber loops into pulse code modulated form (PCM data) suitable for transmission over a public switched telephone network (PSTN) and/or a digital cross switch (DCS); and

a line interface circuit for transmitting said PCM data directly between said pulse code modulation circuit and a T and/or E carrier interface of said PSTN and/or a DCS interface; and

a dialing logic circuit for performing call set up and tear down functions for any data paths set up for said data communications through said PSTN and/or said DCS.

65. (Previously Presented) The data access system of claim 64, wherein said line interface circuit further converts DSL bitstream data into DSO channels for multiplexed transmission over T and/or E carriers of said PSTN.

66. (Previously Presented) The data access system of claim 64, further including an access router for directing a data stream to said PSTN, said DCS, and/or a Wide Area Network (WAN).

67. (Previously Presented) The data access system of claim 64, further including a call setup and tear down circuit for setting up data routing connections through said PSTN, said DCS and/or a Wide Area Network (WAN).

68. (Previously Presented) The data access system of claim 67, wherein the system sets up a virtually permanent circuit connection between a customer premises equipment (CPE) device and a network destination site.

69. (Previously Presented) The data access system of claim 64, wherein an end-to-end dialing connection and/or an end-to-end packet switched connection can be set up between two XDSL communications devices.

70. (Previously Presented) A method of routing data communications received from a digital subscriber loop (xDSL) comprising the steps of:

(a) setting up an xDSL compatible data transmission between an access system and a first customer premises equipment (CPE) site to use an xDSL based broadband signal, said xDSL compatible data transmission being based on an xDSL transmission protocol; and

(b) coupling said access system to both a wide area network (WAN) and a dedicated circuit switched connection, including a public switched telephone network (PSTN); and

(c) routing at least selected time-sensitive portions of said xDSL based signal over said dedicated circuit switched connection between said first CPE and a second CPE using said access system, said selected time-sensitive portions including data for a transfer delay sensitive service; and

(d) adjusting routing of said xDSL based signal through said WAN and/or said dedicated circuit switched connection in response to changes in transfer delay requirements of said XDSL based signal and/or a request from said first CPE site;

wherein a plurality of separate circuit switched connections can be setup for said first CPE site by said routing step (c) and/or said adjusting step (d) to support time-sensitive services of said XDSL based signal.

71. (Previously Presented) The method of claim 70 wherein said xDSL transmission protocol includes support for an ADSL standard.

72. (Previously Presented) The method of claim 70 wherein said selected time-sensitive portions are transferred from said first CPE through a plurality of separate dedicated circuit switched connections to a corresponding plurality of second CPEs.

73. (Previously Presented) The method of claim 70, wherein said XDSL based signal includes ATM formatted data.

74. (Previously Presented) The method of claim 70, wherein said routing is performed on a call by call basis.

75. (Previously Presented) The method of claim 70, wherein said routing is also based on satisfying an access cost factor specified by the user.

76. (Previously Presented) A method of routing data communications over a digital subscriber loop (xDSL) comprising the steps of:

(a) setting up an xDSL communications connection supporting an xDSL compatible data transmission between a first origination site and an access circuit, and

(b) coupling said access circuit to a public switched telephone network (PSTN) switch; and

(c) configuring said access circuit so that at least some portions of said xDSL compatible data transmission from said first origination site can be routed to a plurality of second destination sites using a plurality of separate corresponding PSTN switch connections;

wherein a plurality of separate circuit switched connection ate set up in the PSTN for supporting circuit switched data transmissions between the first origination site and said plurality of second destination sites, said circuit switched data transmissions being transported between said first origination site and said access circuit by said xDSL compatible data transmission.

77. (Previously Presented) The method of claim 76, further including a step of configuring said access circuit so that other portions of said xDSL compatible data transmission are touted over a wide area network (WAN) to said plurality of second destination sites to setup a plurality of separate packet switched connections.

78. (Previously Presented) The method of claim 76, further including a step of configuring said access circuit so that at least time-sensitive portions of said xDSL compatible data transmission are converted into a form suitable for transmission over a T and/or E carrier signal.

79. (Previously Presented) The method of claim 76, further including a step of configuring said access circuit according to cost information provided by a user of said first origination site.

80. (Previously Presented) The method of claim 76, wherein said access circuit is part of a digital subscriber loop access multiplexer (DSLAM) that generates both ATM data for a wide area network and PCM data for direct connection to a PSTN interface from a DSL data signal.

81. (Previously Presented) A method of routing data communications over a digital subscriber loop (DSL) comprising the steps of:

(a) coupling a first DSL customer premises equipment (CPE) communications device through a first DSL to a first DSL access circuit; and

(b) coupling a second DSL CPE communications device through a second DSL to a second DSL access circuit; and

(c) configuring a data path between said first DSL access circuit and said second DSL access circuit through a dedicated permanent switch connection, including a public switched telephone network (PSTN), to carry data from said first DSL CPE communications device to said second DSL CPE communications device;

wherein an end-to-end dedicated permanent switch connection is established between said first DSL CPE communications device and said second DSL CPE communications device.

82. (Previously Presented) The method of claim 81 wherein at least said first DSL access circuit is a DSL access multiplexer (DSLAM), and said DSLAM is configured to convert voice data from said first DSL into pulse code modulated form suitable for transmission over said PSTN.

83. (Previously Presented) The method of claim 81 wherein the end-to-end dedicated permanent switch connection is set up using a dialing procedure initiated by the first DSL CPE communications device calling the second DSL CPE communications device.

84. (Previously Presented) The method of claim 81, wherein said second DSL CPE communications device receives said data over a T and/or E class interface such that a virtually permanent connection is established to said first DSL CPE communications device.

85. (Previously Presented) The method of claim 81, further including a step of: configuring a second data path from said first CPE communications device to a third CPE communications device through a wide area network (WAN).

86. (Previously Presented) A method of routing data communications between a first modern and a second modem comprising the steps of:

(a) coupling the first modem to a first access circuit, said first access circuit being coupled to a packet switched network;

(b) coupling the second modem to a second access circuit, said second access circuit also being coupled to said packet switched network;

(c) processing a call setup request for a communications connection between the first modem and the second modem, said call setup request being based on a dial-up procedure initiated by the first modem to call the second modem,

(d) setting up a packet switched connection between the first modem and the said second modem using said first access circuit and said second access circuit,

(e) communicating data between the first modem and the second modem over said packet switched connection;

wherein a virtual circuit is established over said packet switched network between said first access circuit and said second access circuit in response to the first modem calling the second modem.

87. (Previously Presented) The method of claim 86, wherein a data rate of said packet switched connection is negotiated by said first access circuit, said first modem, said second access circuit and said second modem.

88. (Previously Presented) The method of claim 86, wherein a data rate of said packet switched connection is set by determining a maximum data rate sustainable over connection paths connecting said first modem and said second modem.

89. (Previously Presented) The method of claim 86, wherein a data rate of said packet switched connection is negotiated based on a cost factor specified by a user of said first modem.

90. (Previously Presented) The method of claim 86, further including a step: communicating data between the first modem and a third modem over a separate virtually permanent circuit, said virtually permanent circuit using a dedicated circuit switched connection and a T and/or E class signal interface to said third modem.

91. (Previously Presented) A method of operating a data access system comprising the steps of:

(a) receiving a telephone call based request for communications service from a first modem; and

(b) determining whether said communications service is associated with a time sensitive service or a non-time sensitive service; and

(c) processing said telephone call based request to set up a communications connection between said first modem and a second modem, such that:

i) when a time sensitive service is required, a dedicated switched circuit path is established between said first modem and said second modem; and

ii) when a non-time sensitive service is required, a packet switched path is established between said first modem and said second modem.

92. (Previously Presented) The method of claim 91, wherein communications can be sent over both a dedicated switched circuit path and a packet switched path at the same time for said first modem.

93. (Previously Presented) The method of claim 91 wherein said first modem is an XDSL modem, and said communications connection includes a broadband xDSL signal.

94. (Previously Presented) The method of claim 91 wherein said telephone call based request further specifies a cost factor to be satisfied when establishing said dedicated switched circuit path and/or said packet switched path.

95. (Previously Presented) The method of claim 91, further including a step of: performing pulse code modulation on any time sensitive data so that they are suitable for routing by either a public switched telephone network (PSTN) switch and/or a digital cross switch (DCS).